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Abstract

SILOE, OSIRIS, AND THE FUTURE PERSPECTIVES OF SWIMMING-POOL REACTORS

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SILOE and OSIRIS are two now general purpose research reactors of the "Commissariat à l'Energie Atomique".

SILOE, located within the "Centre d'Etudes Nucléaires" of GRENOBLE is a swimming pool reactor of the same type as MELUSINE and TRITON. It operates at a nominal power of 15 MW thermal and has reached the peak power of 20 MW thermal with two thirds of its cooling system working. The fast flux above 1 MeV, which is maximum at the center of the core at 15 MW thermal is $1,2.10^{14}$. The core, quite open, is downward cooled. Average specific power is 159 kW/l.

OSIRIS is under construction at SACLAY. Designed for 50 MW thermal, this reactor is upward cooled. The fast flux at the center of the core above 1 MeV is calculated to be $2,5.10^{14}$. The average designed specific power is 280 kW/l. A fixed zircalloy gamma shield makes a box round the core.

Future perspectives open to non-pressurised swimming-pool reactors are examined. Ways are suggested for neutronic ; thermal and shielding modifications which make possible further improvements in the performances and economy of these devices.

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